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Wireless data services Infrastructure

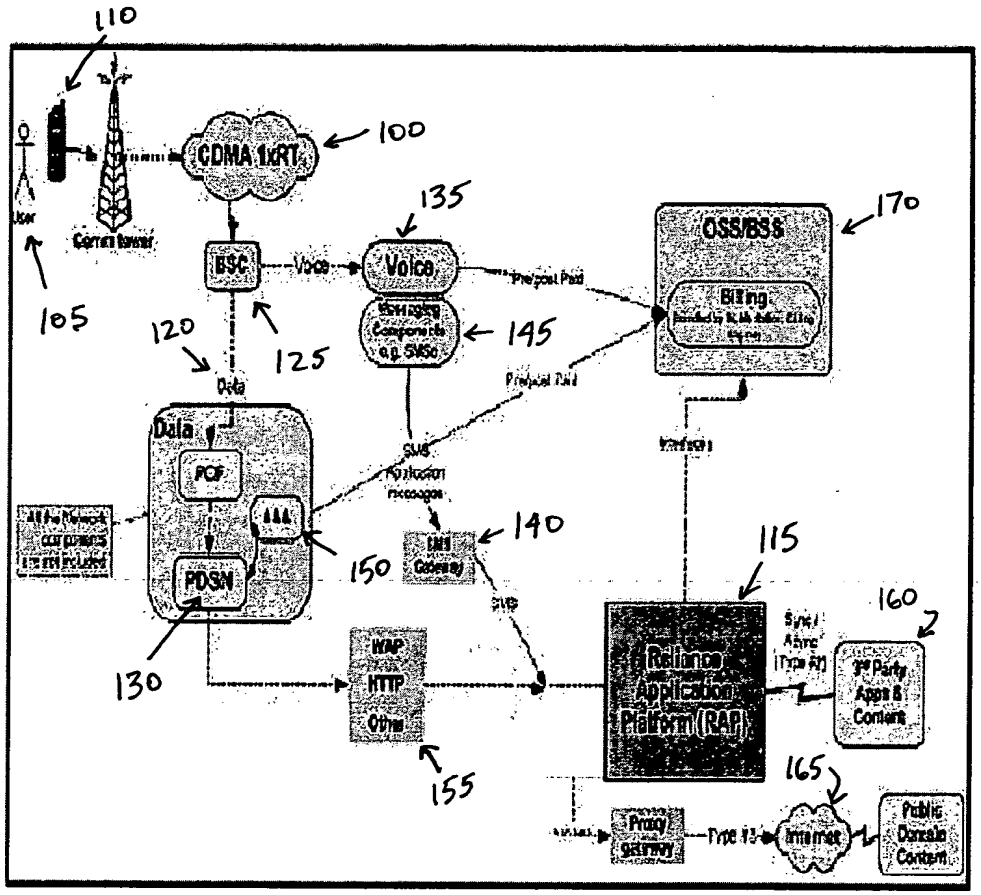


Fig. 1

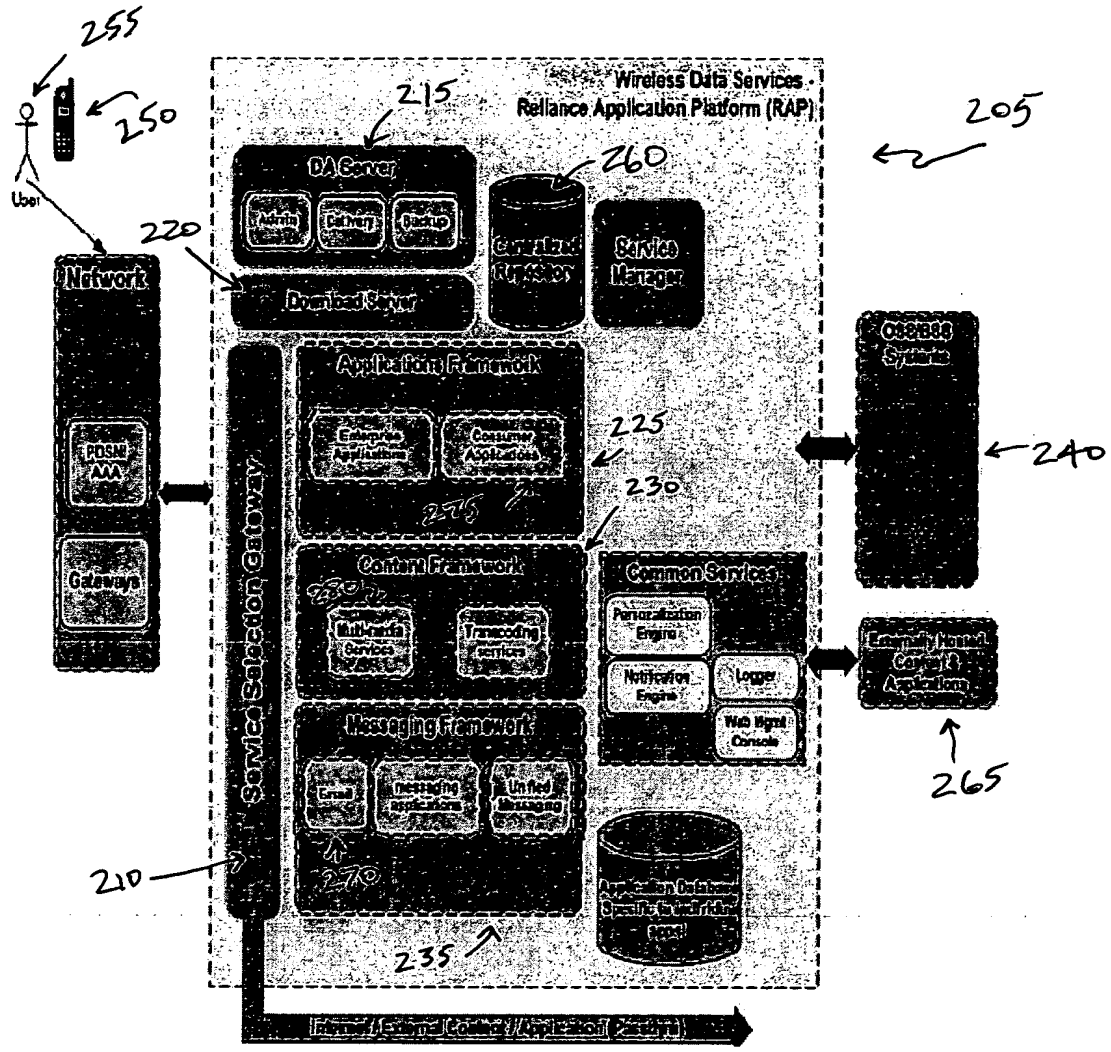

255
250
215
205
Wireless Data Services
Reliance Application Platform (RAP)
DA Server
260
220
Network
Download Server
Service Manager
Application Framework
225
230
240
Content Framework
Common Services
Personalization Engine
Notification Engine
Logger
Web Mgmt Console
Service Location Gateway
Messaging Framework
210
235
265

Fig. 2

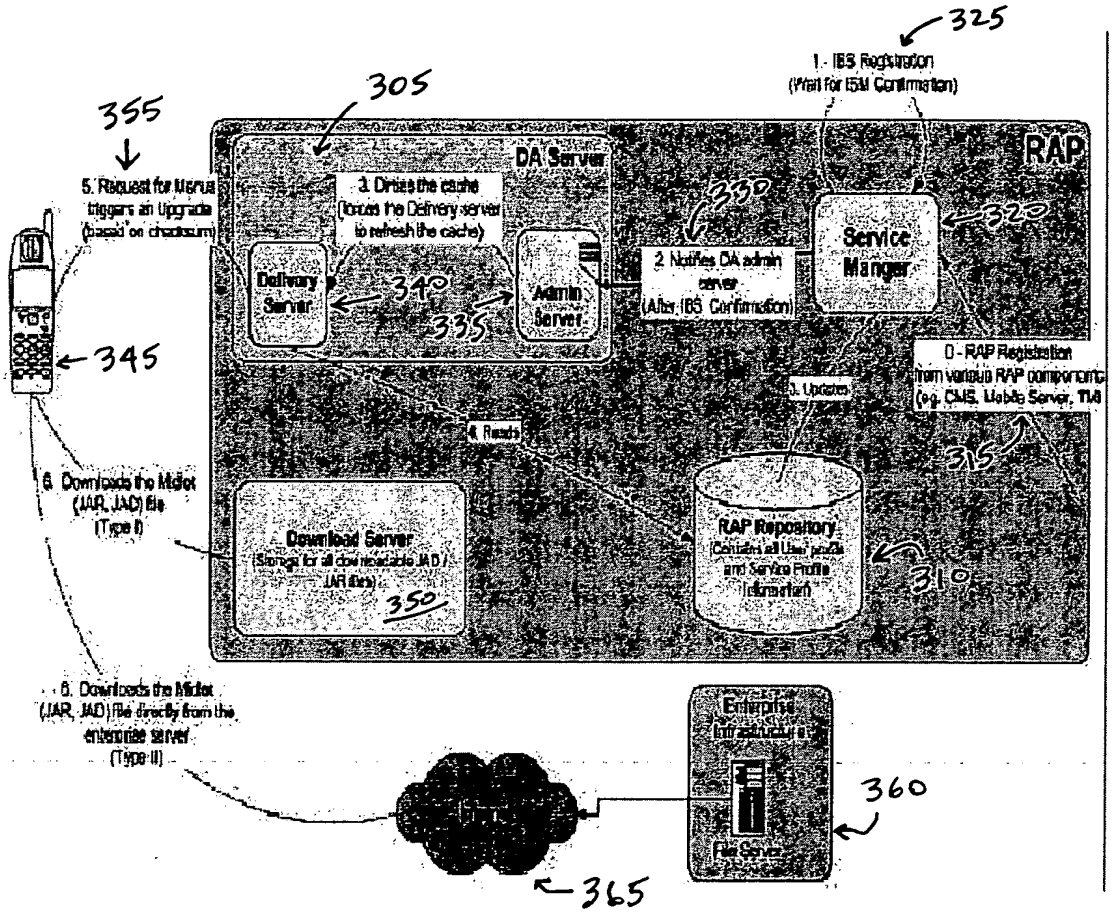

325
1.- IBS Registration
(Wait for ISM Confirmation)
305
355
5. Request for Menus triggers an Upgrade (based on checksum)
DA Server
3. Drops the cache (forces the Delivery server to refresh the cache)
Delivery Server
340
335
Admin Server
330
2. Notifies DA admin server (After IBS Confirmation)
Service Manger
320
RAP
0 - RAP Registration from various RAP components (e.g. CMS, Mobile Server, TM)
315
345
4. Reads
1. Updates
6. Downloads the Midlet (JAR, JAD) file (Type I)
Download Server
(Storage for all downloadable JAD / JAR files)
350
RAP Repository
(Contains all User profile and Service Profile information)
310
6. Downloads the Midlet (JAR, JAD) file directly from the enterprise server (Type II)
Enterprise Infrastructure
360
File Server
365

Fig. 3

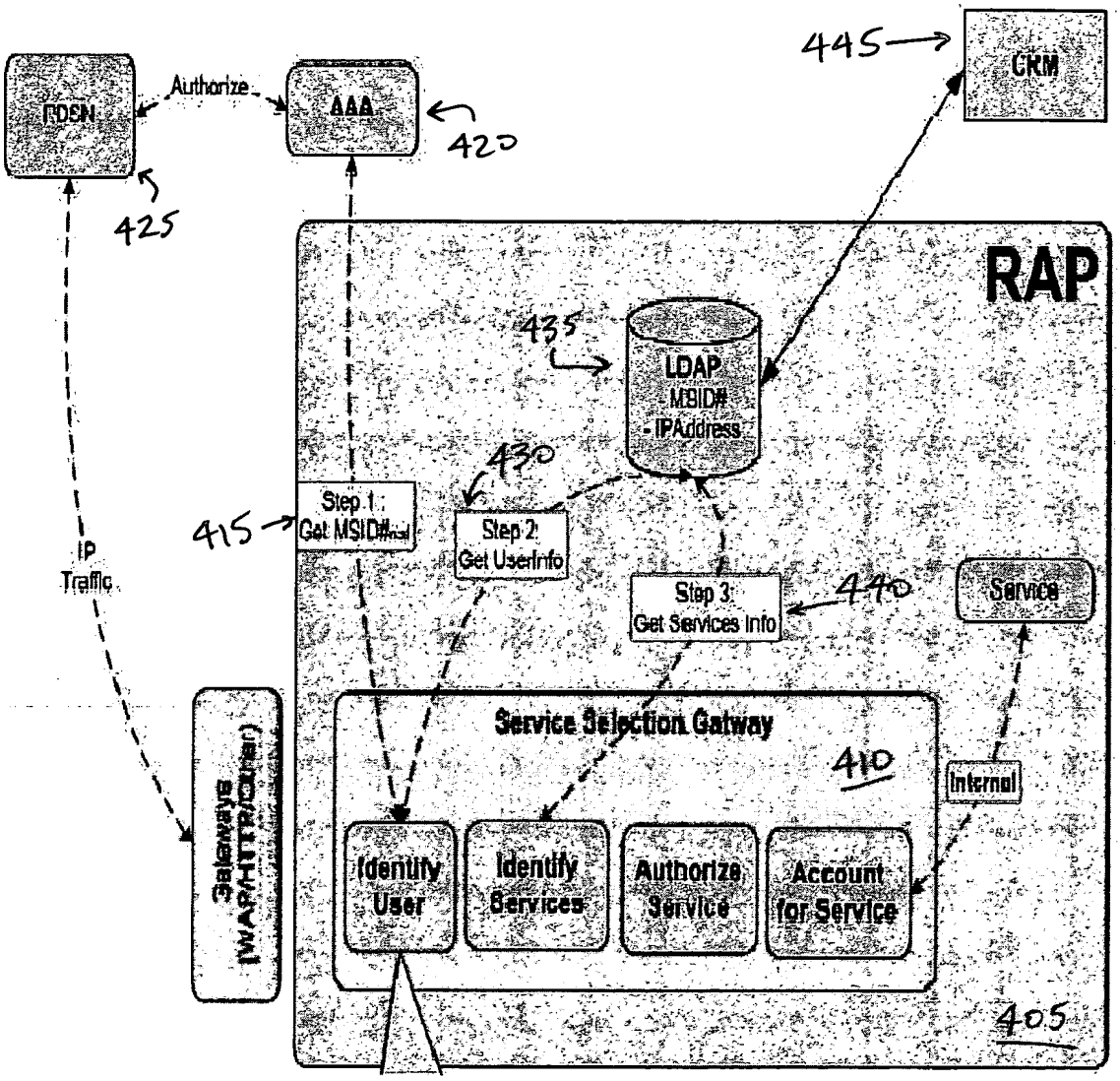

445
CRM
RDSN
Authorize
AAA
420
425
RAP
435
LDAP
MSID#
- IPAddress
430
415
Step 1:
Get MSID#
Step 2:
Get UserInfo
Step 3:
Get Services Info
440
Service
IP
Traffic
Service Selection Gateway
410
Internal
Identify
User
Identify
Services
Authorize
Service
Account
for Service
405

Fig. 4

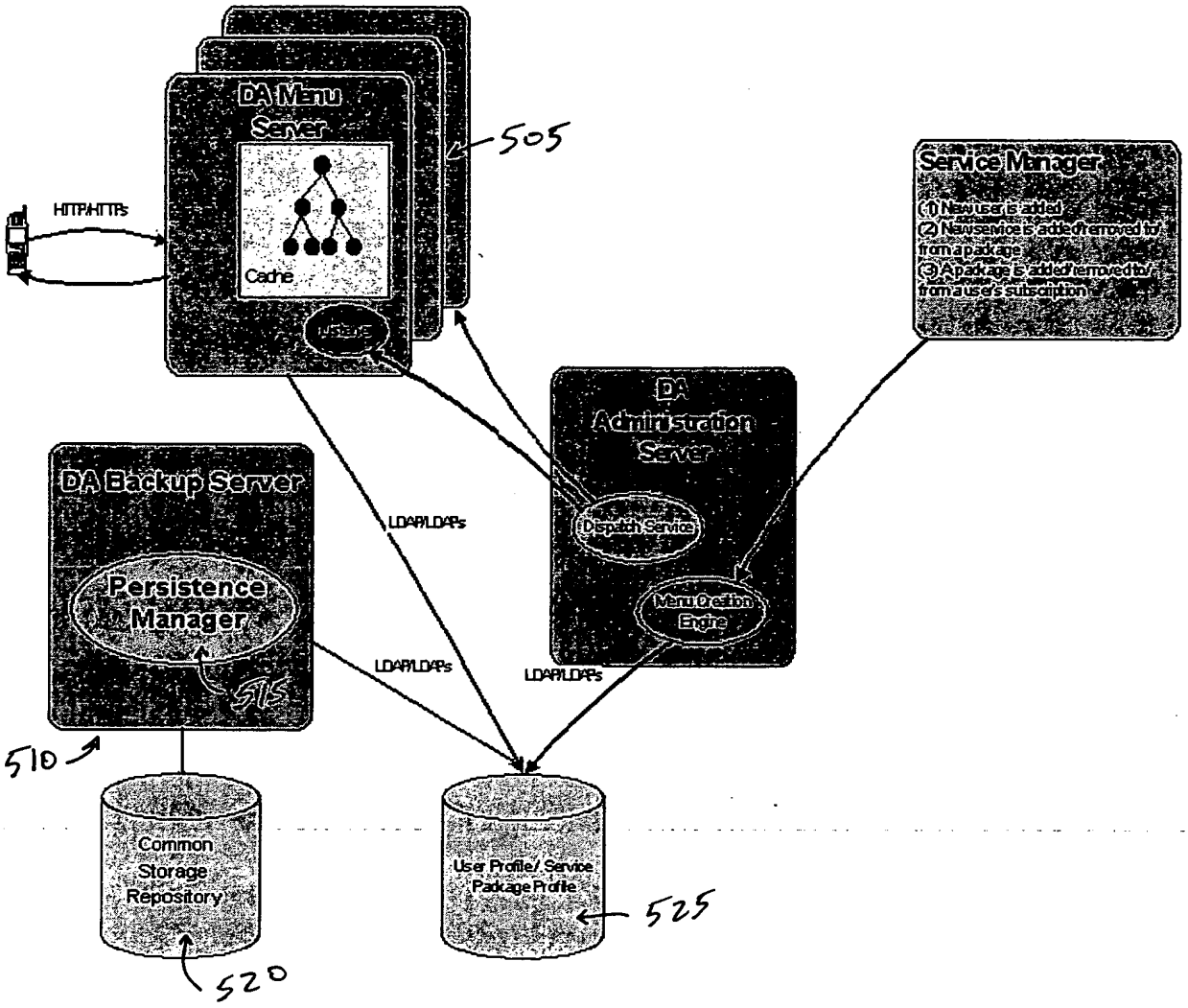
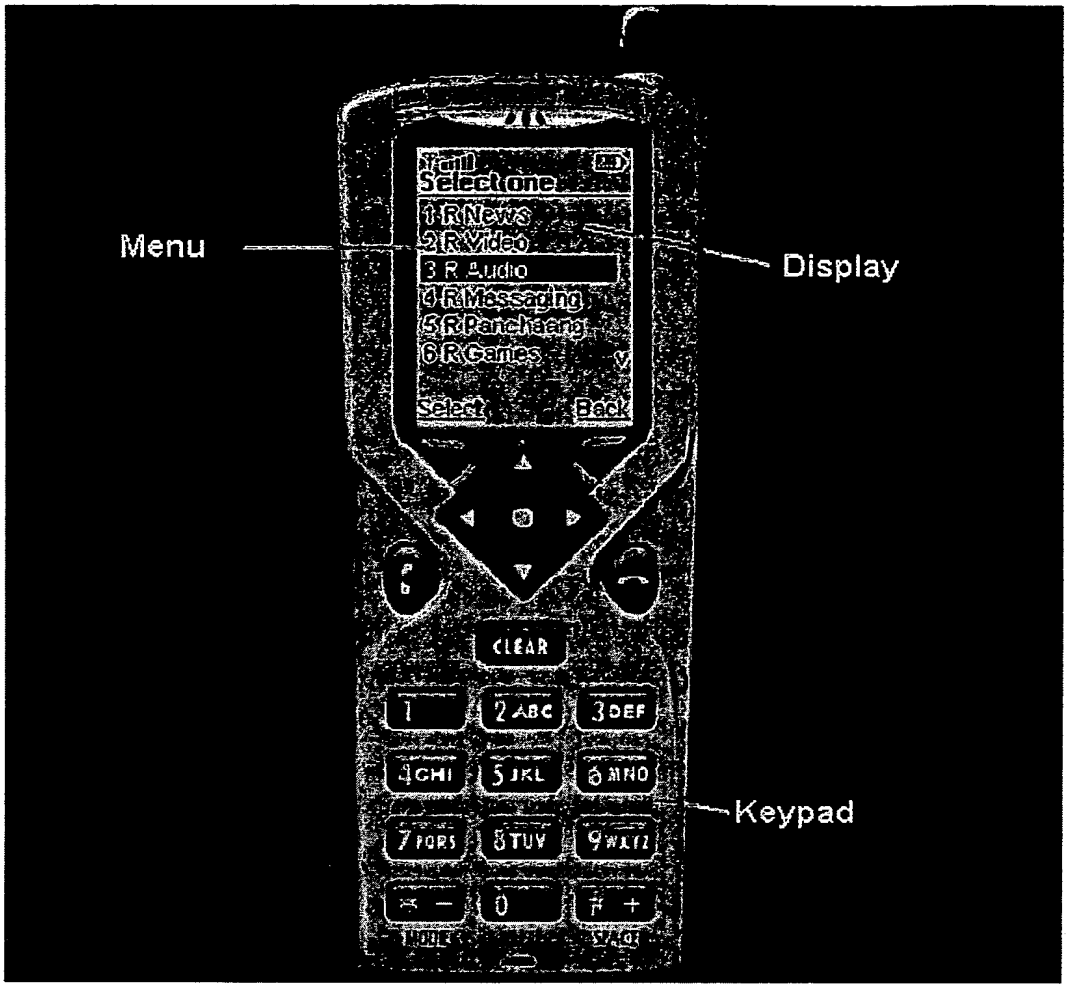
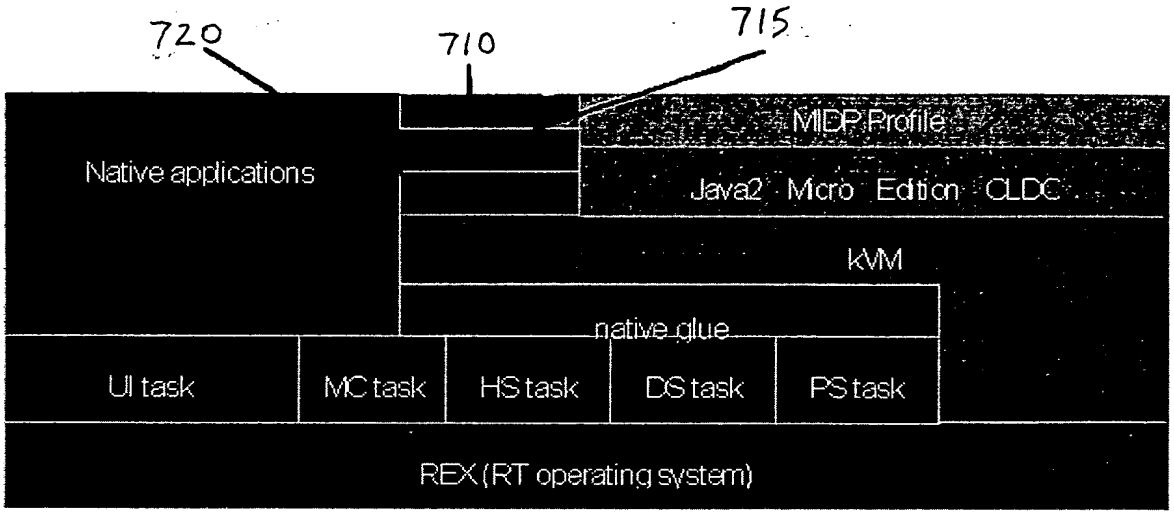

DA Menu Server
505
Cache
HTTP/HTTPs
Service Manager
(1) New user is added
(2) New service is added/removed to/from a package
(3) A package is added/removed to/from a user's subscription
DA Administration Server
Dispatch Service
Menu Creation Engine
DA Backup Server
Persistence Manager
515
LDAP/LDAPs
LDAP/LDAPs
LDAP/LDAPs
510
Common Storage Repository
520
User Profile/ Service Package Profile
525

Fig. 5


Menu
Display
Keypad
Select one
1 R News
2 R Video
3 R Audio
4 R Messaging
5 R Ranchering
6 R Games
Select
Back
CLEAR
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
0

605

Fig. 6



- native application or software environment
- native functions supporting VM including graphic primitives, socket environment, etc...
- kVM written by native C langauge
- Java ™ API classes
- MIDP Profile
- Java applications including network-based games, banking applications, etc...

Fig. 7

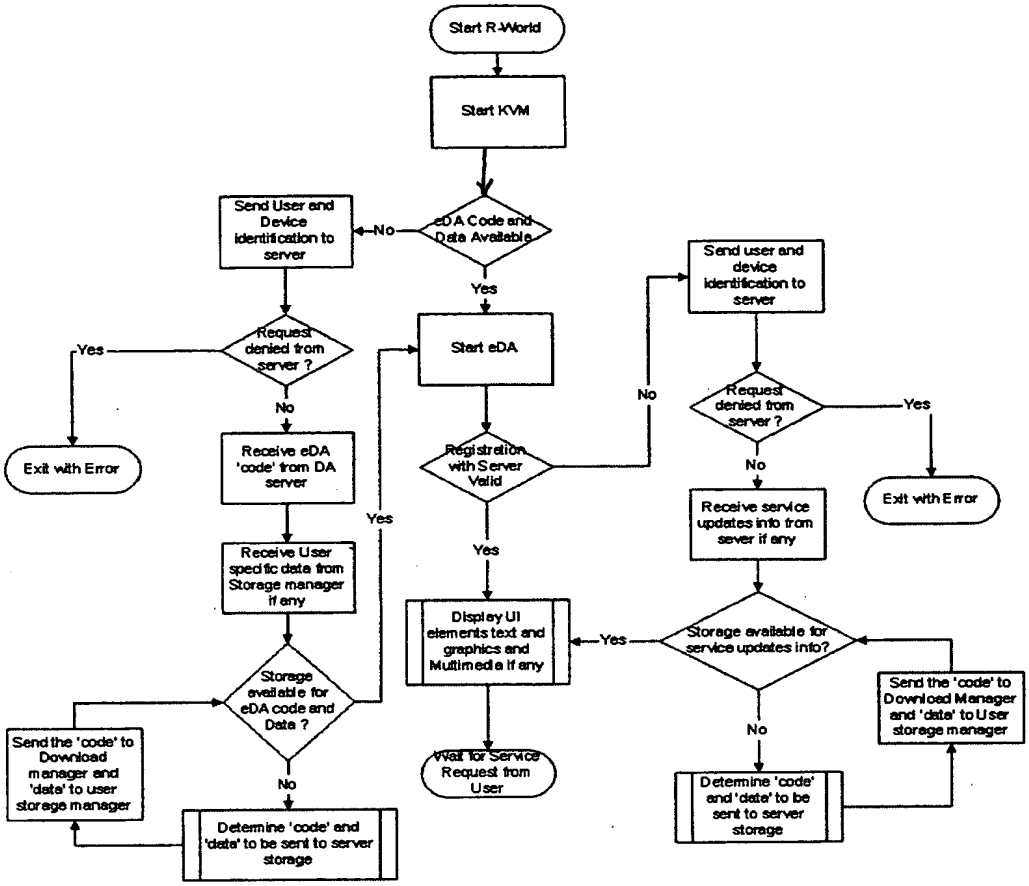

Start R-World
Start KVM
eDA Code and Data Available
No
Send User and Device identification to server
Yes
Request denied from server ?
Yes
Exit with Error
No
Receive eDA 'code' from DA server
Receive User specific data from Storage manager if any
Storage available for eDA code and Data ?
No
Send the 'code' to Download manager and 'data' to user storage manager
Determine 'code' and 'data' to be sent to server storage
Yes
Start eDA
Registration with Server Valid
No
Yes
Display UI elements text and graphics and Multimedia if any
Wait for Service Request from User
Send user and device identification to server
Request denied from server ?
Yes
Exit with Error
No
Receive service updates info from sever if any
Storage available for service updates info?
Yes
Send the 'code' to Download Manager and 'data' to User storage manager
No
Determine 'code' and 'data' to be sent to server storage

Fig. 8

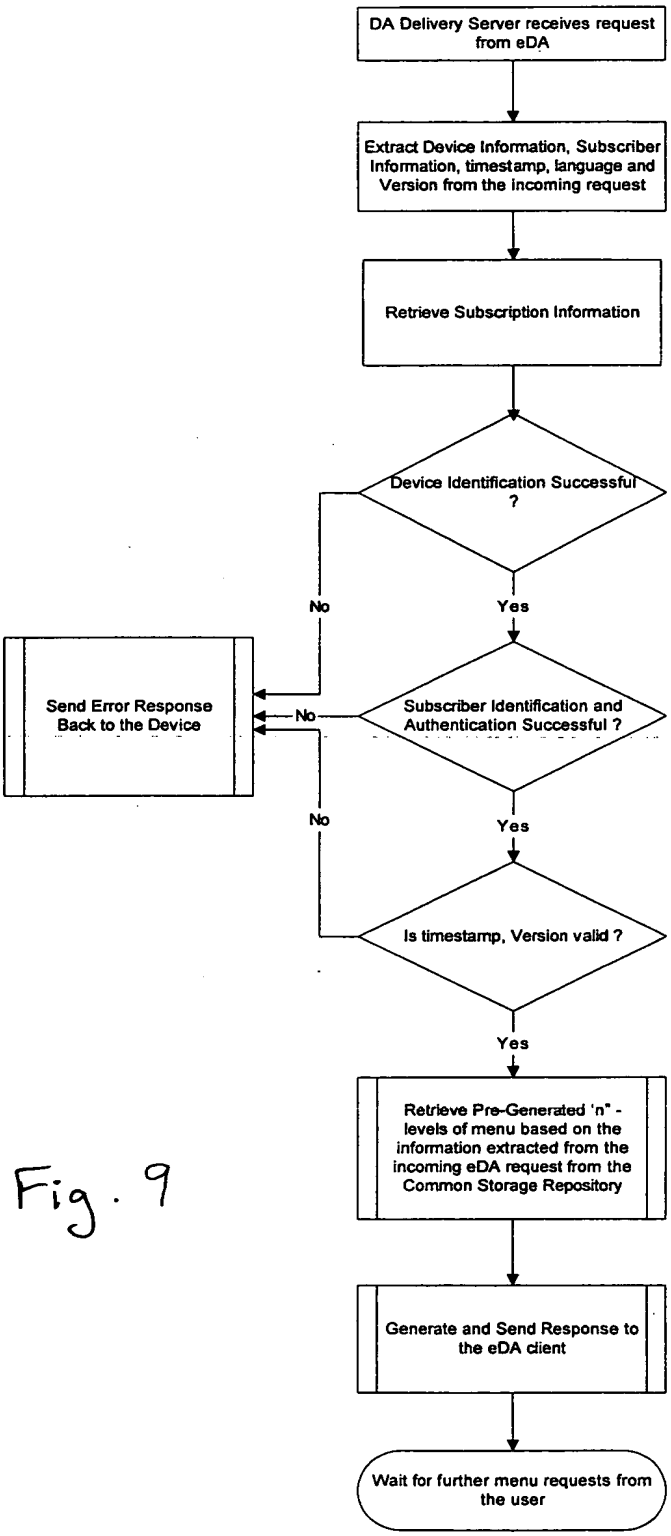

DA Delivery Server receives request from eDA
Extract Device Information, Subscriber Information, timestamp, language and Version from the incoming request
Retrieve Subscription Information
Device Identification Successful ?
No
Yes
Send Error Response Back to the Device
No
Subscriber Identification and Authentication Successful ?
No
Yes
Is timestamp, Version valid ?
Yes
Retrieve Pre-Generated 'n" - levels of menu based on the information extracted from the incoming eDA request from the Common Storage Repository
Generate and Send Response to the eDA client
Wait for further menu requests from the user

Fig. 9

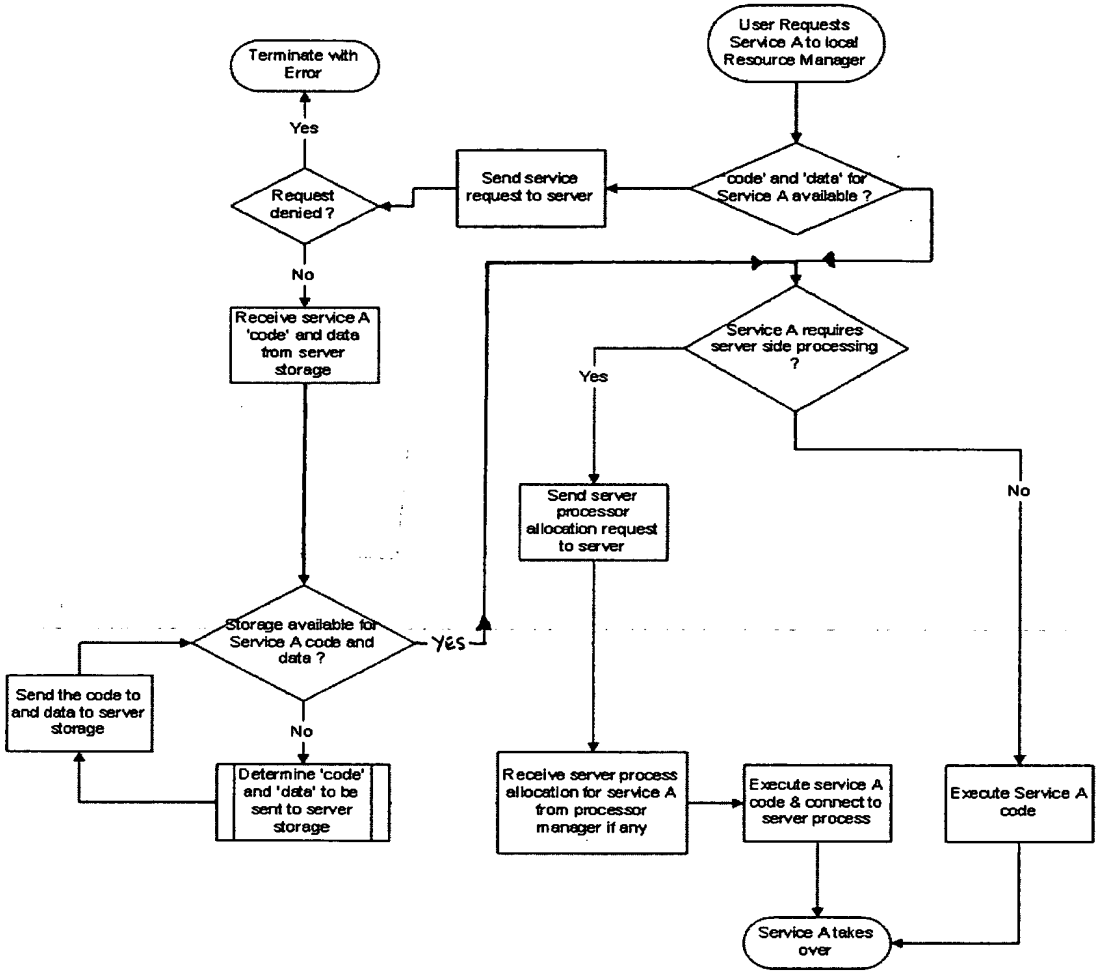

User Requests Service A to local Resource Manager
'code' and 'data' for Service A available ?
Send service request to server
Request denied ?
Terminate with Error
Yes
No
Receive service A 'code' and data from server storage
Service A requires server side processing ?
Yes
No
Send server processor allocation request to server
Storage available for Service A code and data ?
YES
No
Send the code to and data to server storage
Determine 'code' and 'data' to be sent to server storage
Receive server process allocation for service A from processor manager if any
Execute service A code & connect to server process
Execute Service A code
Service A takes over

Fig. 10

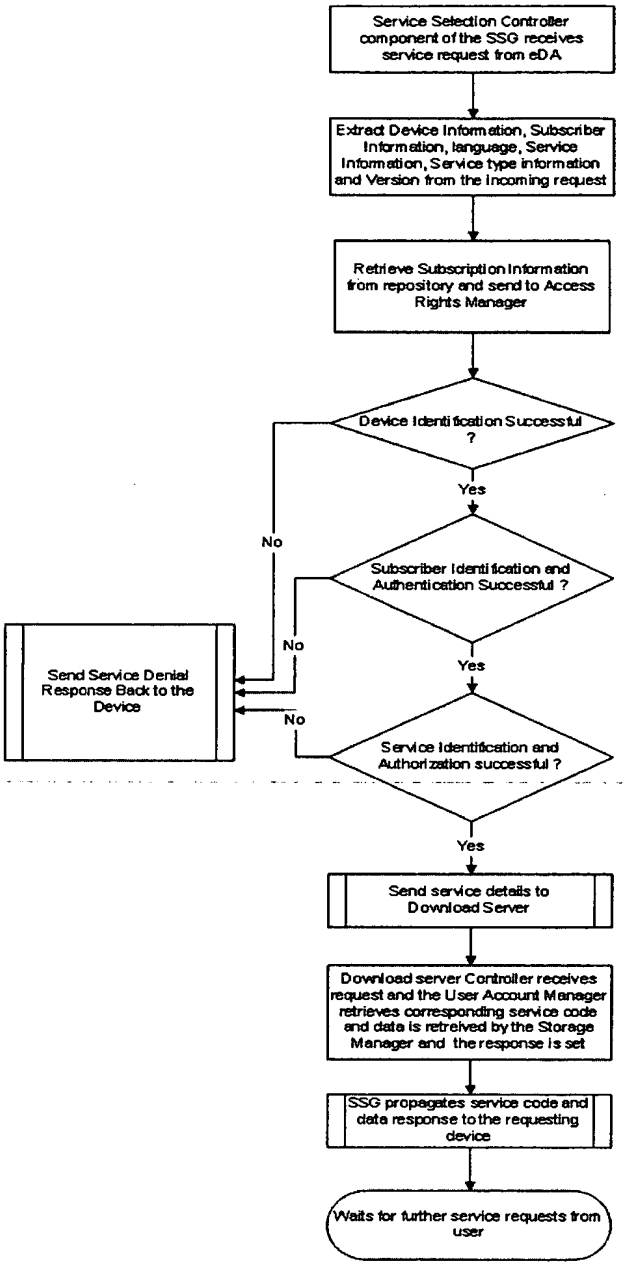

Service Selection Controller component of the SSG receives service request from eDA
Extract Device Information, Subscriber Information, language, Service Information, Service type information and Version from the incoming request
Retrieve Subscription Information from repository and send to Access Rights Manager
Device Identification Successful ?
Yes
No
Subscriber Identification and Authentication Successful ?
No
Yes
Send Service Denial Response Back to the Device
No
Service Identification and Authorization successful ?
Yes
Send service details to Download Server
Download server Controller receives request and the User Account Manager retrieves corresponding service code and data is retreived by the Storage Manager and the response is set
SSG propagates service code and data response to the requesting device
Waits for further service requests from user

Fig. 11

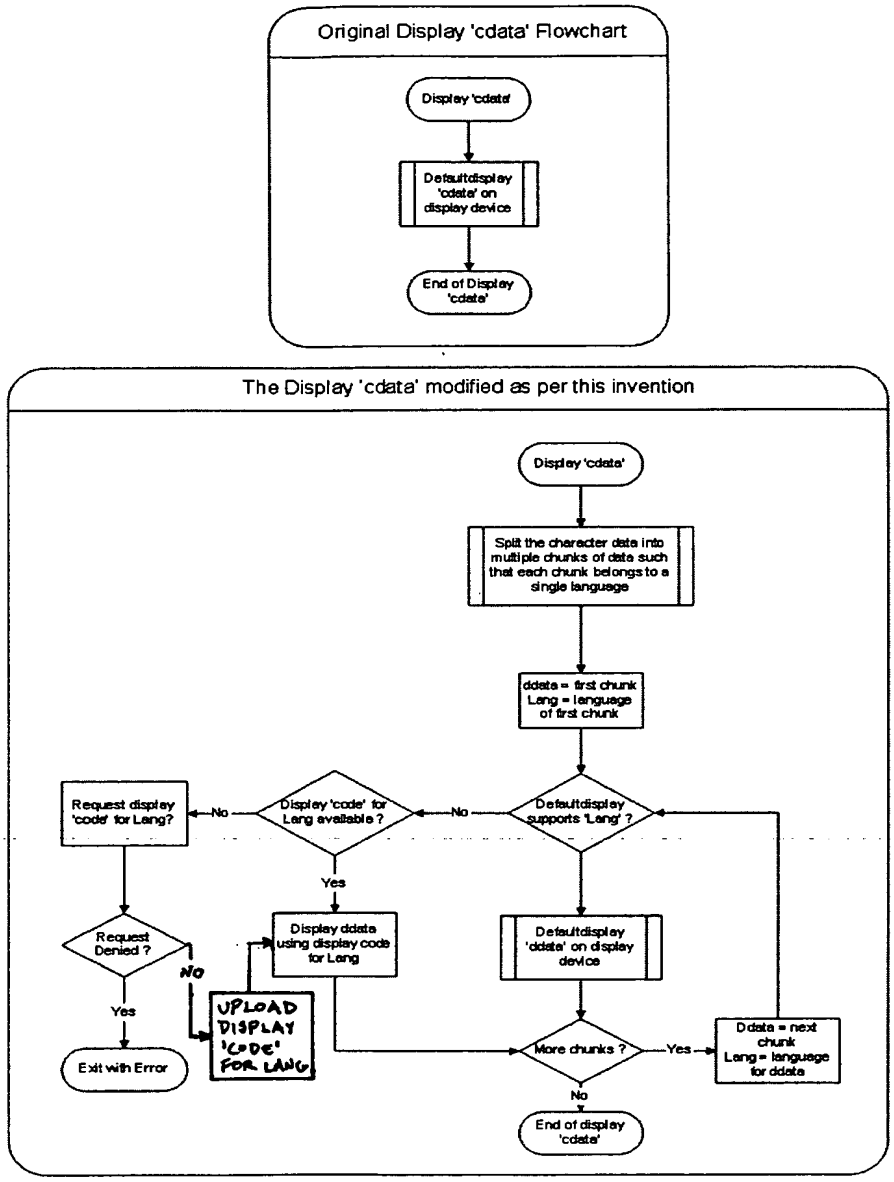

Original Display 'cdata' Flowchart
Display 'cdata'
Defaultdisplay 'cdata' on display device
End of Display 'cdata'
The Display 'cdata' modified as per this invention
Display 'cdata'
Split the character data into multiple chunks of data such that each chunk belongs to a single language
ddata = first chunk Lang = language of first chunk
Defaultdisplay supports 'Lang' ?
No
Display 'code' for Lang available ?
No
Request display 'code' for Lang?
Yes
Request Denied ?
Yes
Exit with Error
No
UPLOAD DISPLAY 'CODE' FOR LANG
Display ddata using display code for Lang
Defaultdisplay 'ddata' on display device
More chunks ?
Yes
Ddata = next chunk Lang = language for ddata
No
End of display 'cdata'

Fig. 12

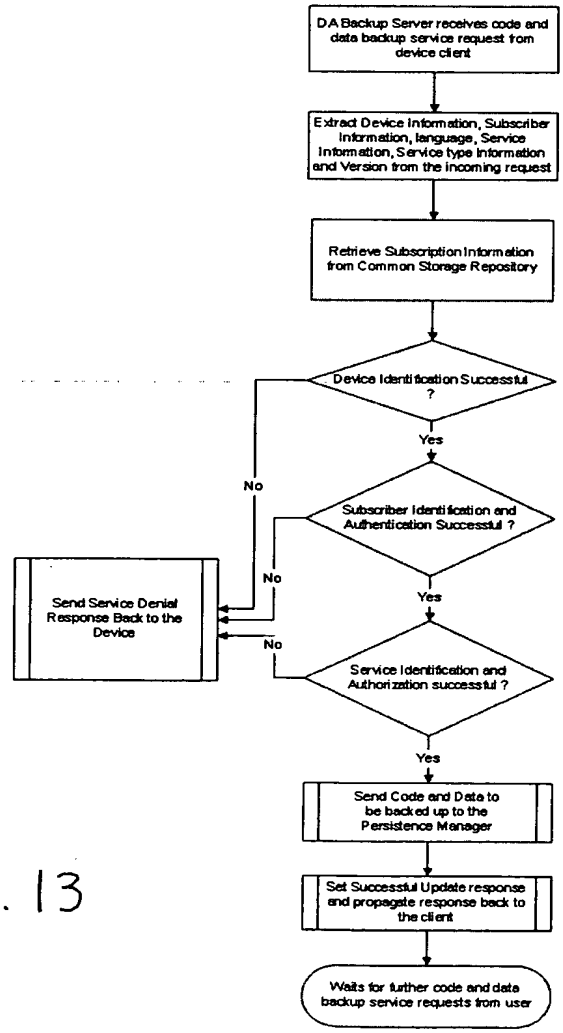

DA Backup Server receives code and data backup service request from device client
Extract Device Information, Subscriber Information, language, Service Information, Service type Information and Version from the incoming request
Retrieve Subscription Information from Common Storage Repository
Device Identification Successful ?
Yes
No
Subscriber Identification and Authentication Successful ?
No
Yes
Send Service Denial Response Back to the Device
No
Service Identification and Authorization successful ?
Yes
Send Code and Data to be backed up to the Persistence Manager
Set Successful Update response and propagate response back to the client
Waits for further code and data backup service requests from user

Fig. 13

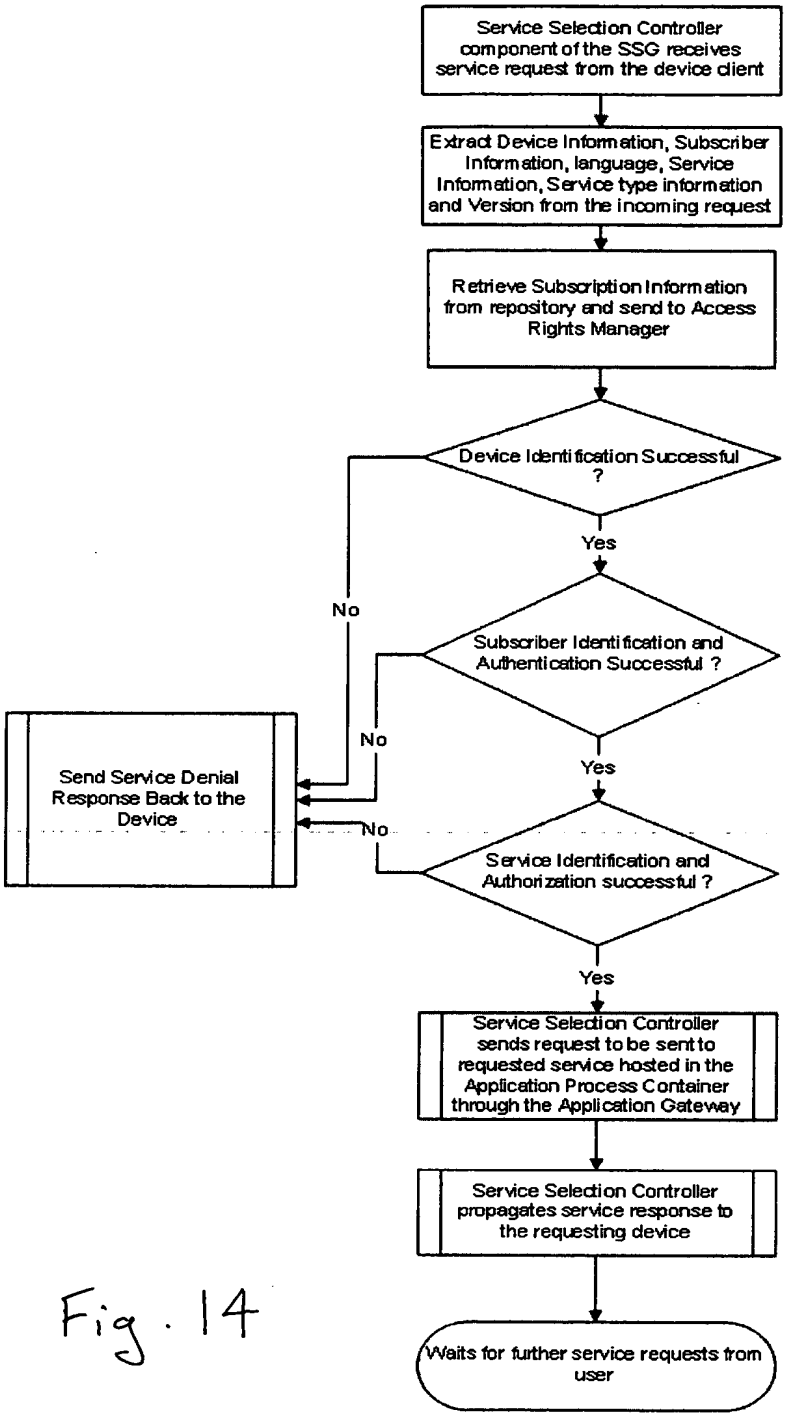

Service Selection Controller component of the SSG receives service request from the device client
Extract Device Information, Subscriber Information, language, Service Information, Service type information and Version from the incoming request
Retrieve Subscription Information from repository and send to Access Rights Manager
Device Identification Successful ?
Yes
No
Subscriber Identification and Authentication Successful ?
No
Yes
Send Service Denial Response Back to the Device
No
Service Identification and Authorization successful ?
Yes
Service Selection Controller sends request to be sent to requested service hosted in the Application Process Container through the Application Gateway
Service Selection Controller propagates service response to the requesting device
Waits for further service requests from user

Fig. 14